

Source	Number	Group	Input	Input Summary	Appendix I Response Location	Appendix I Response
DU Law	D2	Additional Monitoring	FYR should include off-site, or Refuge, testing.	1. Conduct air/dust monitoring within the COU. 2. Conduct air/dust monitoring and soil sampling within the Rocky Flats National Wildlife Refuge. 3. How can you know whether air and soil conditions have changed if there is no monitoring?	D - Additional Monitoring	1. Conduct air/dust monitoring within the COU. Monitoring of air contaminants was not required by the CAD/ROD as part of the final remedy for the COU because substantial, relevant data on air quality at and near the former RFP had been gathered previously. Ambient air monitoring began when the RFP began operating in 1952; large-scale, continuous ambient air monitoring began in 1971. The Department of Energy (DOE) conducted both effluent monitoring (e.g., measuring stack and building air contaminant emissions) and ambient air monitoring to demonstrate regulatory compliance, as well as to monitor fugitive particulate radionuclide emissions from decommissioning, remediation, and demolition operations. CDPHE also operated an ambient particulate radionuclide air monitoring network inside the RFP boundary and a network of five ambient non-radioactive pollutant air monitors at the site perimeter. During closure, DOE and the regulatory agencies monitored air quality around demolition and cleanup activities to ensure air quality standards and radiation limits for workers and the public were not exceeded. In 1989, federal regulations were issued for the protection of the public from radioactive air emissions from DOE facilities (40 Code of Federal Regulations 61, Subpart H). These regulations, the National Emission Standards for Emissions of Radionuclides Other Than Radon From Department of Energy Facilities (Rad-NESHAP), limit annual dose to any member of the public to 10 mrem/year through the air pathway. The dose from radionuclide air emissions (plutonium, americium, and uranium) at the RFP never exceeded this limit. In fact, based on historical ambient air monitoring, annual dose to the public during both RFP operation and closure was consistently less than 3% of the annual standard. This includes the period of active demolition and remediation at the site, when the highest levels of dust emissions would have been generated. During site cleanup, the maximum radiation dose from the site to any member of the public through the air pathway was less than 1 millirem (mrem)/year. For comparison, 1 mrem/year is comparable to the dose received from travelling 1,000 miles by plane or by watching television. To put this in context, the average annual dose to a person in the United States due to all sources is 620 mrem, including both natural sources of radiation and medical tests.
DU Law	D25	Additional Monitoring	The Community's repeated requests for soil sampling and air monitoring has been unilaterally denied to date.		D - Additional Monitoring	
DU Law	D15	Additional Monitoring	Competent ongoing air sampling should occur on both the DOE site at Rocky Flats and the Wildlife Refuge...Ongoing sampling of respirable dust should occur on both DOE land and the Refuge.		D - Additional Monitoring	
RFSC	R4	Additional Monitoring	How can you know whether air and soil conditions have changed if there is no monitoring?		D - Additional Monitoring	
DU Law	D6	Cleanup	<p>The <u>DOE has never adequately explained how the Rocky Flats cleanup could legitimately be reduced from 65 years and \$37billion to 10 years and \$7billion without substantial compromises in the work</u> that would be completed resulting in compromises to the remedy's protectiveness of human health and the environment.</p> <p>For example, the RFCA "accelerated actions" did not completely describe the environmental conditions at Rocky Flats, <u>nor did the final response action ensure that residual contamination did not present an unacceptable risk to human health or the environment. Any data collected from gamma spectroscopy or x-ray fluorescence are inappropriate for decision making</u> in the RI/FS/CRA conducted by Kaiser-Hill because they do not meet specific RI/FS quality assurance requirements established by the EPA.</p>	The protocols and cleanup standards applied during accelerated actions at the RFP were insufficient and the cleanup was incomplete.	B- Accelerated Cleanup	The former RFP was investigated and remedies were selected in compliance with the Rocky Flats Cleanup Agreement (RFCA), which served as both a federal facilities agreement under CERCLA and a consent order under the Colorado Hazardous Waste Act. This agreement was signed by DOE, EPA, and the Colorado Department of Public Health and Environment (CDPHE) in 1996. The RFCA prescribed an accelerated closure process based on applicable environmental regulations and close consultation among the agencies. For example, the surface soil action levels in the agreement were calculated using protective methodologies based on a lifetime excess cancer risk of 1 in 100,000 for a Wildlife Refuge Worker. For comparison, the normal lifetime cancer risk in the U.S. is approximately 1 in 3. When exceeded, these action levels triggered removal actions. Plutonium was one of the primary contaminants of concern in surface soil at the former RFP; for plutonium, a 1 in 100,000 carcinogenic risk was calculated to be equivalent to 116 pCi/g of plutonium in soil. After discussions with community officials, DOE, EPA, and CDPHE further reduced the surface soil action level for plutonium to 50 pCi/g. Following remediation, residual plutonium concentrations in surface soil were below regulatory standards. The final remedy in the Corrective Action Decision/Record of Decision (CAD/ROD) was based on the Remedial Investigation/Feasibility Study (RI/FS) report, which included a comprehensive risk assessment that evaluated both human and ecological risks. The remedy chosen in the 2006 CAD/ROD, conformed to state and federal environmental regulations. As stated in the CAD/ROD, the selected remedy consists of institutional and physical controls with surface water and groundwater monitoring, including ongoing treatment of groundwater at the existing groundwater treatment systems and landfill cover maintenance at the two landfills.
DU Law	D8	Cleanup	<p>The history of what actually took place during the cleanup is complex, secretive and poorly documented, <u>particularly related to how specific actions were tied to changes in the cleanup standards. Trade-off decisions about standards and promised levels of cleanup were inappropriately and unilaterally made by the DOE, and according to the DOE's own study these decisions were more driven by Congressional pressures on funding and deadlines than based on scientific evidence of protectiveness.</u></p> <p>The DOE also has used the shield of National Security to close the site, essentially controlling every aspect of data collection and analysis. <u>The entire history of this site lacks transparency and oversight by anyone outside of the DOE's influence.</u></p>		B- Accelerated Cleanup	
DU Law	D9	Cleanup	<p>There is <u>significant long-standing distrust and discord between the Community and the DOE as a result of the conduct of the DOE and its contractors during the actual operations of the Rocky Flats Plant, the incomplete cleanup and the stonewalling of post-cleanup concerns.</u>The Community...<u>believe that the cleanup standards were inappropriately compromised.</u> They also believe that <u>sampling data for analysis is selectively collected or presented in summary form to support findings that favor the DOE.</u></p>		B- Accelerated Cleanup	
DU Law	D27	Cleanup	<p>The <u>radiation exposure standards set for the cleanup are not adequately protective on either the DOE site or the Wildlife Refuge.</u> Though the public recommended standards for a more rigorous cleanup, they were ignored. Scientific studies...support the public, not the action taken by DOE and the regulators.</p>		B- Accelerated Cleanup	

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DU Law	D11	Cleanup	<p>The DOE <u>must fully engage with the Community to finally resolve the distrust and discord that are the natural consequences of the DOE's responsibility for the contamination of this site, the incomplete cleanup, and its subsequent stonewalling of the Community's concerns.</u></p> <p>A complete depiction of the distrust and discord between the Community and the DOE at Rocky Flats would fill volumes and solve little. Suffice it to say that years of misdirection, stonewalling and dismissal of public concerns by the DOE has compromised its credibility and destroyed any trust that the DOE is serving and protecting much beyond but its own interests.</p>	B- Accelerated Cleanup		
DU Law	D20	Cleanup/AME work	<p>...the cleanup at Rocky Flats, based as it is on the work of the AME team, looks like a short-term solution to a long-term problem. The AME researchers, with all their confidence in modeling, <u>made no effort to predict conditions at and near Rocky Flats 500 years from now, much less 10,000 or 100,000 years from now.</u></p>	B- Accelerated Cleanup		
DU Law	D28	Cleanup	<p>According to a report published in 2000, The National Research Council "finds that much regarding DOE's intended reliance on long-term stewardship is at this point problematic." This is a polite way of saying that long-term stewardship doesn't work at all DOE sites. <u>It won't work at Rocky Flats without starting over, setting exposure standards that are actually protective and then cleaning the site to the maximum extent possible with existing technology.</u></p>	B- Accelerated Cleanup		
DU Law	D19	Flooding	<p><u>No samples of Pu or other toxins leaving the site during the flood were taken, because the radiation monitors were so inundated with water that they shut down.</u> So we have no record of the quantity of toxins passing the monitors and leaving the site. Besides monitors that didn't work, sheet flooding occurred in the 2013 event, and <u>no effort has ever been made to monitor Pu or other toxins leaving the site under sheet flooding conditions.</u></p>	<p>1. The 2013 flood event incapacitated surface water monitoring equipment to the point that the quantity of contaminants that migrated off the COU in unknown.</p> <p>2. No sediment sampling has been done to investigate contaminant migration off the COU.</p>	I - Flooding	<p>1. The 2013 flood event incapacitated surface water monitoring equipment to the point that DOE-LM does not know the quantity of contaminants that migrated off the COU.</p> <p>The COU experienced very high flows during the second week of September 2013. In some cases the high flows and debris caused damage to the automated sampling equipment, resulting in temporary interruptions in composite sampling. At almost all locations, the unanticipated runoff volumes caused flow-paced composite bottles to fill before personnel could safely replace them with empty bottles. Access to various areas of the COU was unsafe and restricted by local authorities during certain periods.</p>
Superior	S16	Flooding	<p>There has been no effort to sample sediments or groundwater to the east of the COU along the Walnut or Woman Creek drainages even though the magnitude of the flooding events and the Wright Water Engineering report <u>make it clear that contaminated sediments and water moved from the COU onto the Refuge and perhaps even east of Indiana.</u>The flooding event makes it critical that <u>new sampling activities take place</u> in order to evaluate whether flood control efforts on the COU are adequate to protect the remedies and whether additional remedial efforts to reduce the potential for human exposures east of the COU are necessary.</p>	Increased exposures to radioactive materials in sediment or groundwater mobilized during flooding events, has not been evaluated.	I - Flooding	<p>At the Woman Creek POC (WOMPOC), although sampling was interrupted for 22 hours and 10 minutes, 326 grab samples were collected from late on 9/11/13 through 9/13/13. Similarly, at the most downstream Walnut Creek POC (GS03), although sampling was interrupted for 7 hours and 8 minutes, 469 grab samples were collected on 9/12/13 through 9/13/13. Monitoring data both before and after the sampling interruptions, from numerous locations in the COU, coupled with the fact that the majority of the runoff originated offsite, do not suggest that high contaminant concentrations occurred.</p> <p>DOE has since made improvements to the surface water monitoring systems to minimize sampling interruption during extreme, low-probability weather events. Secondary automated samplers have been installed at each POC to provide backup sample volume capacity. In the event of extreme flows resulting in the premature filling of the primary sampler, the secondary sampler will automatically begin to collect samples, ensuring extended sampling until personnel can access the site.</p>
Superior	S13	Flooding	<p><u>Additionally, increased exposures to radioactive materials mobilized during flooding events has not been evaluated.</u> These radioactive materials may be found in sediment or groundwater.</p>		I - Flooding	<p>Surface water samples collected for RFLMA monitoring are not filtered prior to analysis. Therefore, these sample results represent the combination of contaminants detected in the dissolved fraction of the water and contaminants detected in the suspended solids portion of the water. While sediment sampling is not required as part of the remedy in the COU, surface water sample results provide an indication of the concentration of contaminants associated with sediment that could settle out in the streambed.</p>
Superior	S15	Flooding	<p><u>"...much of the desired data does not seem to exist due to equipment limitations, equipment failures and because of road damage</u> on both Indiana and Hwy 93 caused by the flooding.</p> <p>That extreme storm events can mobilize uranium in unexpected ways seems obvious. <u>The resulting discharge of contaminants was not anticipated when the remedy was selected and due to the equipment failures is unmeasured and unevaluated.</u> Because of these issues whether or not the remedies are protective of human health and the environment, is in question...</p>		I - Flooding	<p>The surface water remedial action objective (RAO) is “Meet surface water quality standards, which are the Colorado Water Quality Control Commission surface water standards”. The surface water standards are concentration-based values and surface water monitoring sample concentrations are measured so they may be compared to these standards. The total quantity (mass) of contaminants is not measured directly by routine monitoring activities.</p> <p>2. No sediment sampling has been done to investigate contaminant migration off the COU. Increased exposures to radioactive materials in sediment or groundwater mobilized during flooding events, has not been evaluated.</p>

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Superior	S17	Flooding	<p>It is clear that the engineering features in place did not function well during the flooding event. Sampling systems were off-line and overwhelmed, so <u>there is simply no data from which any conclusion can be reached about the degree to which contaminants were mobilized and, therefore, redeposited in areas where the land use changes will create public contact and exposure.</u> The lack of data does not justify the cavalier assumption that nothing bad has happened. In fact, the opposite is true and because DOE has not bothered to look, we do not know whether substantial contaminant levels now exist in areas where increased human contact and use is planned. The inability of the remedies to cope with the flooding event must be corrected or nobody can have faith in whether or not public health and environment is being adequately protected.</p> <p>These <u>additional activities must include sampling of soils and sediments in the areas downstream of the COU along Woman and Walnut Creeks in anticipation of construction activities and the resulting human exposures.</u> Protection of the sampling equipment and other aspects of the remedies so that they function during flood events must also occur.</p>		I - Flooding	<p>Surface water exiting the COU via Woman Creek is ultimately captured in the Woman Creek Reservoir, which is part of the Standley Lake Protection Project. The reservoir was constructed in the mid-1990s by the City of Westminster, with the objective of protecting Standley Lake (a drinking water source) from contaminated stormwater runoff. Water entering Woman Creek Reservoir is held for ninety days, treated if necessary, and tested for quality before being released (http://www.ci.westminster.co.us/ExploreWestminster/OpenSpace/OpenSpaceAreas/WestminsterLandofLakes/WomanCreekReservoir). From the reservoir, the water is pumped to the northeast into Walnut Creek, altogether avoiding Standley Lake. Sediment in the Woman Creek Reservoir is periodically sampled by the Woman Creek Reservoir Authority; the most recent report of sampling results was published in May 2014.</p>
Broomfield	B10	FYR Process	In closing, Broomfield would formally request a sixty-day (60-day) public comment period when the Fourth CERCLA Five-Year Review document is released in 2017.	<p>Input was received related to the FYR process, as follows:</p> <p>1. Public comment period for the FYR report.</p> <p>2. Scope of the FYR.</p> <p>3. Federal agency responsibilities and potential conflicts of interest.</p>	A - FYR Process	<p>1. Public comment period for the FYR report.</p> <p>The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) does not require formal public comment on the FYR report; it only requires that the public be notified of the start of the FYR process and of the availability of the final FYR report (EPA 2001). Interested stakeholders were notified of the start of the FYR at a June 2016 RFSC meeting, via email, and through notices posted on the DOE-LM website. The public was invited to submit questions and other input to the e-mail address provided in the notice and listed on the LM website. A notice when the final FYR report is issued will be distributed in the same manner as the initial FYR notice. As always, DOE accepts input from the public during RFSC meetings, in response to quarterly and annual reports and presentations, in response to contact records, and through other means of contact (formal or informal).</p> <p>2. Scope of the FYR.</p> <p>Federal environmental law (CERCLA) requires that a FYR be conducted for sites where hazardous substances, pollutants, or contaminants remain above levels that allow for UU/UE: If DOE "...selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, [DOE] shall review such remedial action no less often than each 5 years after the initiation of such remedial action..." (CERCLA §121(c)). The COU meets this condition; and therefore, CERCLA requires that a FYR be completed for the COU every 5 years. The remaining operable units associated with the former Rocky Flats Plant (the POU [now the Wildlife Refuge] and OU3) were determined to meet UU/UE conditions in 2007 and were deleted from the National Priorities List (NPL) (Vol. 72 Fed. Reg. 29276). Therefore, a FYR is not required for the POU or OU3. This fourth FYR report evaluated changes to toxicity factors and other risk parameters for these two operable units to determine if the UU/UE designation is still valid (see Appendix C).</p> <p>3. Federal agency responsibilities and potential conflicts of interest.</p> <p>The U.S. Environmental Protection Agency (EPA) is not responsible for conducting FYRs at federal NPL sites. CERCLA §120 allows, and Executive Order 12580 directs, the federal department with control of the site to serve as the lead agency for the FYR with EPA providing oversight. However, EPA retains final authority to make or concur with protectiveness determinations (EPA 2001). For the COU, DOE-LM is considered the lead agency and completes the FYR; EPA will either concur with the lead agency protectiveness determination or provide independent findings. CERCLA does not require that an independent authority, other than the EPA, evaluate the protectiveness of the remedy.</p>
Broomfield	B11	FYR Process	...we would like to schedule a future meeting to review the disposition of Broomfield's comments. Finally, we ask that DOE-LM respond to our comments on an individual basis rather than grouping comments and providing general responses.		A - FYR Process	
DU Law	D1	FYR Process	The FYR is not restricted to the COU, but also includes the Refuge.		A - FYR Process	
DU Law	D5	FYR Process	A critical issue to the Community is the obvious conflict of interest posed by a DOE-lead FYR...		A - FYR Process	
DU Law	D7	FYR Process	This FYR evaluation process proposed by the DOE is entirely circular logic riddled with conflicts of interest.		A - FYR Process	
DU Law	D10	FYR Process	The DOE <u>must base its findings on a fresh and expanded analysis methodology incorporating an independent authority</u> to perform a scientifically rigorous evaluation of the protectiveness of the COU remedy.		A - FYR Process	
DU Law	D29	FYR Process	Although there is no statutory requirement for the government agencies doing the CERCLA FYR to prepare the text of the review without the public having the opportunity to see it and comment on it such a process would benefit all parties. <u>The DOE's Review and the EPA's Review concurrence letter must be completed and made available to the public well in advance of the final date for completion of the Review. The public should have at least one month in which to comment on the Review, and the DOE and the EPA must provide their responses to the public by the date for completion of the Review.</u> The rules for commenting and receiving responses must be similar to those used in the CERCLA process.		A - FYR Process	
DU Law	D12	FYR Process	If the DOE is unable or unwilling to cure the shortcomings in its approach to this FYR then the EPA <u>must intervene with a finding of non-concurrence</u> if finds reasonable grounds that the DOE refuses to provide sufficient data and observations to support its protectiveness determination.		A - FYR Process	
Broomfield	B8	GW Treatment Systems	...the Solar Pond Treatment (SPT) Unit has been operating in "treatability mode" since closure. Broomfield recommends that DOE-LM develop and implement a long-term corrective action for the SPT unit. The uranium and nitrate levels entering the SPT unit, as well as the levels leaving the SPT unit, continue to be elevated. The Fourth CERCLA Five-Year Review should include a specific list of water treatment criteria that the SPT unit needs to meet. In the absence of such criteria, the ability to demonstrate the short- and long-term effectiveness of the groundwater treatment units becomes highly suspect and questionable.	The continued exceedances of RFLMA standards by effluent from the Solar Ponds Plume Treatment System (SPPTS) calls into question the effectiveness of this groundwater treatment system.	H - Groundwater Treatment Systems	Refer to Section E1.1.2.2 (SPPTS) of this fourth FYR report for a discussion of remedy performance at this treatment system in relation to protectiveness. Monitoring data associated with the groundwater treatment systems provide valuable information to support the evaluation of remedy performance. The effluent data from these treatment systems are considered in conjunction with routine monitoring data, inspection results, and institutional controls to evaluate the protectiveness of the remedy.

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Superior	S1	Land Use Assumptions	...we remain very concerned with the continued lack of air monitoring. As discussed below, various <u>land use changes</u> are planned in areas impacted by contamination historically coming from the Legacy Management area. To justify deletion of the areas now constituting the Wildlife Refuge from CERCLA, <u>assumptions were made about the lack of soil disturbance and human exposures that are now very questionable</u> given plans for a DOE funded visitor center, trail construction as part of the Greenway project and future highway construction. <u>No assessment has been made of the potential for these activities to disturb contaminated soils and mobilize them off of the Site or to create unanticipated exposures of people on the Site.</u>	The adequacy of remedies at Rocky Flats are limited by specific land use assumptions that are no longer valid. Specific concerns include: - To justify deletion of the areas now constituting the Wildlife Refuge from CERCLA, assumptions were made about the lack of soil disturbance and human exposures that are now very questionable given plans for a DOE funded visitor center, trail construction as part of the Greenway project and future highway construction. - Other human receptors such as construction workers building highways or bike paths, or volunteers working on trails and other maintenance activities, were never considered and no such exposures have been formally evaluated. - New exposure pathways now exist that have never been evaluated due to changes in land use and the 100-year flooding event. - There is no data or other information sufficient to establish that the current remedies are adequate to protect human health in the face of the planned land use changes or the impacts of the flooding event. The Five-year review must recommend either a reevaluation of the remedies to address these issues or call for a halt to the land use changes. - Significant changes in circumstances, including burgeoning housing developments adjacent to the site and proposed increased public access to the Refuge, have rendered the COU remedy's physical and institutional controls obsolete and ineffective.	C - Land Use Assumptions and Exposure Scenarios	The land use for the COU remains consistent with that stated in the CAD/ROD: land ownership is expected to remain with the United States government and DOE-LM will manage the COU for remedy-related purposes. Lands that constitute the POU and OU3 were determined to be suitable for any use (i.e., UU/UE). This means that there are no restrictions on the use of the POU or OU3 offsite areas and they may be used for any activity (i.e., under any exposure scenario). As a result, changes in land use will not affect the UU/UE determination. That determination was based on risk assumptions for Wildlife Refuge Worker and Wildlife Refuge Visitor scenarios, as well as comparisons of environmental sampling data with preliminary remediation goal (PRG) values (1 x 10-6 risk) calculated for a Rural Resident scenario (CAD/ROD 2006). The impacts of the severe weather events experienced during this FYR period are discussed in relation to remedy protectiveness in Sections 6.1.3.1, 6.1.4.2, and 6.3 of this FYR report.
Superior	S4	Land Use Assumptions/Exposure Scenarios	For reasons that are not clear, " <u>exposure to subsurface soil/subsurface sediment was not evaluated for the WRV.</u> " Apparently, the assumption was that a WRV was never going to touch any dirt of breathe any dust. <u>This is obviously an error</u> as the documents cited above demonstrate thaht the exposure pathways to the Contaminants of Concern (COCs) are complete and significant.		C - Land Use Assumptions and Exposure Scenarios	
Superior	S7	Land Use Assumptions/Exposure Scenarios	Several of the cited documents make it clear that <u>exposure assessments assumed neither of these human receptors is engaged in construction activities or will experience substantial exposure to contaminated soils.</u> These limitations, while comvenient, are not consistent with the fashion in which USFWS intends to manage the Refuge...		C - Land Use Assumptions and Exposure Scenarios	
Superior	S5	Land Use Assumptions/Exposure Scenarios	Wildlife refuge worker and wildlife refuge visitor were the only human receptors evaluated in the RI/FS for Rocky Flats. This highly limited view of human receptors and equally limited exposure scenarios were based upon the assumed land use as a wildlife refuge. <u>Other human receptors such as construction workers building highways or bike paths, or volunteers working on trails and other maintenance activities, were never considered and no such exposures have been formally evaluated. These limiting assumptions are no longer valid</u> and "guesses" as to lower exposures to the contrary are not helpful nor reassuring.		C - Land Use Assumptions and Exposure Scenarios	
Superior	S3	Land Use Assumptions	<u>The adequacy of remedies at Rocky Flats are limited by specific land use assumptions that are no longer valid.</u> In particular, the impacts on human use and occupancy in the Wind Blown Exposure Area which runs east from the former industrial zone to Indiana street. Much of this area was incorporated into the central operating unit now under Legacy Management while the rest is in the Wildlife Refuge. Our primary focus is on those lands within both the Woman Creek and Walnut Creek drainages.		C - Land Use Assumptions and Exposure Scenarios	
Superior	S8	Land Use Assumptions	The most extensive soil disturbance apparently anticipated for WRW was post-hole digging and vegetation management. <u>The RI/FS did not calculate the risks to construction workers building trails or highways.</u> None of these assessments anticipated that WRW or volunteers would be engaged in construction of trails such as are now proposed as part of the Greenway project.		C - Land Use Assumptions and Exposure Scenarios	
Superior	S10	Land Use Assumptions	<u>The performance and adequacy of the remedies for the Central Operating Unit, have never been evaluated in light of the actual and planned land use changes.</u> As the operation of these remedies directly impacts the migration of contamination into the Refuge east of the Central Operating Unit, this Five-year Review must now require that evaluation.		C - Land Use Assumptions and Exposure Scenarios	
Superior	S18	Land Use Assumptions	<u>Given the changes in proposed land use in these areas and the flooding event, it is not reasonable to conclude that exposure assumptions conducted ten or more years ago are still valid. New exposure pathways now exist that have never been evaluated due to changes in land use and the 100-year flooding event.</u> Both of these very significant changes happened within the last five years and directly impact the reliability of the human exposures scenarios previously used to select the remedies.		C - Land Use Assumptions and Exposure Scenarios See also I - Flooding	

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Superior	S6	Land Use Assumptions/Exposure Scenarios	The <u>potential use of volunteers to build trails now planned fo the first time in the Woman and Walnut Creek drainages is especially concerning.</u> These people would most certainly encounter soils that must be assumed to be contaminated with a variety of contaminants including VOCs, arsenic, and radioactive elements such as plutonium.		C - Land Use Assumptions and Exposure Scenarios	
Superior	S12	Land Use Assumptions/Exposure Scenarios	<p>"...the RI/FS and CAD/ROD did not evaluate the specific risks in the wind blown area because none of the then planned land uses involved construction or even meaningful human use in this area. There were to be no trails or facilities, so even visits by a WRW would be rare.</p> <p>These land use changes are critical because while most of the Peripheral Operating Unit has suffered only small amounts of known impact from the industrial activities at Rocky Flats, "plutonium-239/240 exists above background in surface soil in the Wind Blown EU". <u>There can be no valid assumptions about human exposures from changed land uses in the Wind Blown Exposure Unit, especially in the Woman and Walnut Creek drainages, based upon prior work because these changed land uses and resulting exposures were not previously considered.</u></p>		C - Land Use Assumptions and Exposure Scenarios	
Superior	S19	Land Use Assumptions	<p>DOE and EPA specifically rejected remedies for the Wind Blown Exposure Area and Central Operating Unit that involved soil removal because of the increased risk posed to workers involved in the removal of contaminated soil (associated with the operation of heavy equipment), and the risk posed to the public from transportation of these soils to disposal sites. These concerns pre-dated the flooding event which may well have deposited additional contaminated soils and mobilized contamination in groundwater potentially magnifying the problems.</p> <p>Certainly these concerns are still valid and we see no reason that DOE, EPA, FWS or CDPHE can now simply ignore their earlier positions. The planned new land uses make it impossible to ignore these risks as they will involve precisely the same uncontrolled exposure risks previously noted. There is no data or other information sufficient to establish that the current remedies are adequate to protect human health in the face of the planned land use changes or the impacts of the flooding event. The Five-year review must recommend either a reevaluation of the remedies to address these issues or call for a halt to the land use changes.</p>		C - Land Use Assumptions and Exposure Scenarios	
DU Law	D4	Land Use Assumptions	Significant changes in circumstances, including burgeoning housing developments adjacent to the site and proposed increased public access to the Refuge, have rendered the COU remedy's physical and institutional controls obsolete and ineffective.		C - Land Use Assumptions and Exposure Scenarios	
WCRA	W1	OLF	<p>Continue to require a monthly frequency for inspections of the Original Landfill and require additional monitoring of up-gradient groundwater levels</p> <p>...as DOE/LM is in the process of determining appropriate engineering solutions to this ongoing issue attributable to ground slopes and groundwater, it seems prudent that recommendations in the <u>Fourth Five Year review include direction for up-gradient groundwater level monitoring at a frequency of at least weekly.</u></p>	<p>1. Continue monthly inspections of the OLF and require additional monitoring of up-gradient groundwater levels.</p> <p>2. Highly toxic polychlorinated biphenyls (PCBs) are being air-stripped from groundwater into the environment, mainly in the OLF.</p>	J - OLF	<p>1. Continue monthly inspections of the OLF and require additional monitoring of up-gradient groundwater levels. The current monthly inspection frequency for the OLF is mandated by RFLMA and cannot be changed unless authorized by the RFLMA parties. In addition to the monthly inspections, the OLF is also inspected following extreme weather events as required by RFLMA. The monitoring of groundwater levels upgradient of the OLF is conducted to support and inform evaluation of OLF conditions and will continue at the discretion of DOE-LM.</p> <p>2. Highly toxic PCBs are being air-stripped from groundwater into the environment, mainly in the OLF. This statement is incorrect. There is no air stripping treatment occurring at the OLF. There is no PCB treatment occurring at the OLF or anywhere in the COU. PCBs are not contaminants of concern in the groundwater contaminant plumes in the COU. Air stripping is used for the treatment of volatile organic compounds (i.e., chemicals that evaporate readily) in groundwater from the East Trenches and Mound Site contaminant plumes (see Section 6.1.4.3 of this fourth FYR report).</p>
DU Law	D16	OLF	Highly toxic PCBs are being air-stripped from groundwater into the environment, mainly in the Original Landfill.		J - OLF	
Broomfield	B7	PLF	<p><u>...the treated effluent downstream of the PLFTS has frequently exceeded the Site's water quality standards...</u>the consultative process between DOE-LM and federal and state regulators has been triggered every calendar year since closure...</p> <p>The past two Five-Year CERCLA Reviews identified continuing problems with the water quality at the Present Landfill. Broomfield requests that the <u>Fourth CERCLA Five-Year Review include a clearly defined corrective action plan</u> to address this ongoing water quality issue. When the water quality in the Present Landfill pond exceeds applicable standards, any discharge or release from the pond should immediately cease until subsequent sampling demonstrates that the water quality meets the RFLMA standards.</p>	The fourth FYR should include a clearly defined corrective action plan to address ongoing water quality issues at the Present Landfill (PLF).	K - PLF	<p>Refer to Section 6.1.4.1 of this fourth FYR report for discussion of monitoring results at the PLF. The RFLMA consultative process has been triggered by PLF treatment system effluent monitoring results during this FYR period. However, the RFLMA parties have not required corrective action in response, since downstream surface water quality has not been impacted.</p> <p>The determination whether a corrective action (mitigation) plan is necessary to address site conditions is made by the RFLMA parties through the RFLMA consultative process. Although the FYR report may identify issues and make recommendations based on the results of the technical assessment, any necessary action plans would be developed independent of the FYR process. Therefore, it is not appropriate to include corrective action plans in the FYR report. The RFLMA consultative process allows for the more timely identification, evaluation, and ongoing mitigation of issues in contrast to the FYR process, which occurs every five years.</p>

Stakeholder Input Crosswalk				PRELIMINARY DRAFT FOR WORKING GROUP REVIEW	(Not edited)	5/4/2017
Broomfield	B2	Question A	Based on the variability of the analytical data and Site inspection reports, it is clear <u>the Site has not fully stabilized. The Site continues to have reportable conditions at points of evaluation (POE) on Woman Creek and Walnut Creek.</u> In addition, the water quality sampling at the Walnut Creek point of compliance (WALPOC) recently exceeded the uranium standards. Although the sampling result at WALPOC didn't exceed the 12-month rolling average, it was the first time that elevated levels have been observed at a regulatory point of compliance after closure.	Based on point of compliance (POC)/point of evaluation (POE) exceedances of Rocky Flats Legacy Management Agreement (RFLMA) standards and Original Landfill (OLF) slumping, DOE-LM cannot state that the remedy is functioning as intended by the decision document. Specific concerns include: 1. Uranium exceedance at Walnut Creek POC (WALPOC). 2. OLF slumping. 3. Data are inadequate to determine protectiveness. 4. The water sampling protocol is limited by flawed assumptions and weather-related failures. 5. DOE is collecting insufficient or incorrect data to support permanent resolution of remedy failures. 6. Only a "Short-Term Protective" finding is appropriate.	E - Question A	Section 6.1 of this fourth FYR discusses Question A, “Is the remedy functioning as intended by the decision documents?” Based on this FYR evaluation, the remedy is functioning as intended by the CAD/ROD. Institutional and physical controls are in place and effective, required groundwater and surface water monitoring is ongoing and supports achievement of remedial action objectives (RAOs) in the long term, and operation and maintenance (O&M) of remedy components at the OLF, PLF, and groundwater treatment systems is ongoing and supports achievement of RAOs in the long term. 1. Uranium exceedance at WALPOC. The reportable conditions at the POEs and POCs during this FYR period and how they relate to the protectiveness of the remedy are discussed in Sections E1.2.1 and 6.1.3.1, respectively. DOE-LM acknowledges that this is the first time uranium standards at WALPOC have been exceeded since closure of the former RFP. As a result, a comprehensive evaluation of these conditions was conducted (see Section 6.1.3.1). Remedy performance is evaluated using several other indicators as outlined in RFLMA, to include surface water monitoring results from locations upstream of POCs, groundwater monitoring results, landfill inspection results, treatment system operation and maintenance, performance monitoring results, and observations during inspections. The evaluation of POC and POE exceedances and any subsequent corrective actions are addressed through the RFLMA consultative process. The RFLMA parties (DOE-LM, EPA, CDPHE) have agreed that based on the data evaluated to date, corrective actions are not warranted to address the uranium exceedance at WALPOC. Monitoring data is reported in the quarterly and annual RFLMA reports and discussed with the public at the quarterly RFSC meetings.
Broomfield	B3	Question A	With the documented instability in the water sampling results, continued ground surface movements, and ongoing revegetation efforts, <u>there has not been an opportunity to develop a reliable baseline and ensure the remedy is functioning per its intended design.</u>		E - Question A	2. OLF slumping. Discrete areas of the OLF are slumping. This slumping is being addressed as part of ongoing landfill maintenance activities, which are part of the selected remedy in the CAD/ROD. Specifically, the CAD/ROD requires continued operation and maintenance of engineered structures, such as the landfill covers and groundwater treatment systems. Refer to Section 6.1.4.2 of this fourth FYR report for a discussion of the OLF in relation to protectiveness.
Broomfield	B5	Question A	The Site continues to have issues meeting uranium surface water standards at WALPOC...Based on continuing issues at the WALPOC and GS-10, along with the variability in the quality of surface water, <u>the Fourth Five-Year Review should include a detailed action plan to evaluate and address these ongoing problems. Based on these recent exceedances, it is clear that the remedy has not stabilized and uranium continues to migrate both on and off-site.</u>		E - Question A	3. Data are inadequate to determine protectiveness. The media (surface water and groundwater) to be monitored at the former RFP following closure were determined in the 2006 CAD/ROD, based on the results of the RI/FS. Monitoring frequency and sample analyses are prescribed by RFLMA. Monitoring data are important in the evaluation of site protectiveness and are reviewed in conjunction with other information to determine whether the remedy is protective. Other such information includes the results of monthly and weather-related landfill inspections, groundwater treatment system operation and maintenance monitoring, observations during annual site-wide inspections, and effectiveness of institutional and physical controls.
DU Law	D13	Question A	<u>The contaminants sampling data collected under the current RFLMA is inadequate to assess the protectiveness of the COU remedy.</u>		E - Question A	4. The water sampling protocol is limited by flawed assumptions and weather-related failures. The surface water monitoring network is a robust and sophisticated system that collects automated, flow-paced composite samples. This system design allows for the collection of samples that represent water quality over a period of time (as opposed to a single point in time), based on how much water is flowing through the system. Following the 2013 flood event, the surface water monitoring system was enhanced to reduce sampling interruptions during extreme weather events (see Group I response below).
DU Law	D24	Question A	The DOE's limited water sampling data collection strategy overlooks the possibility that a <u>failure of the remedy will cause contaminants to rise to the surface and also possibly become airborne rather than flow out through the surface or groundwater.</u>		E - Question A	5. DOE is collecting insufficient or incorrect data to support permanent resolution of remedy failures. Based on the evaluation of remedy performance completed for this FYR, the remedy is functioning as intended by the CAD/ROD and is protective of human health and the environment (see Section 8.0 of this fourth FYR report). This conclusion is based on several sources of information, such as groundwater and surface water routine monitoring data, site inspections, treatment system operation and maintenance, and other data collected to evaluate specific conditions. The RFLMA consultative process provides the mechanism for the identification of data needs and allows for the collection of additional data/information to support evaluation of site conditions (e.g., OLF slumping, POC exceedances). For example, DOE has contracted two independent geotechnical studies of the slumping at the OLF (see Section 6.1.4.2 of this fourth FYR report) and a comprehensive study of uranium in the Walnut Creek drainage (see Section 6.1.3.1) to better understand these site conditions.
DU Law	D17	Question A	<u>The water sampling protocol the DOE has in place is limited by flawed assumptions and weather-related failures.</u> An example is the DOE's assumptions about plutonium migration. What happens with Pu in the Rocky Flats environment in unusually wet conditions, such as the flood of September 11-13, 2013 and heavy rain in February to mid-June, 2015?		E - Question A	6. See Section 8.0 of this fourth FYR report regarding the protectiveness statement and rationale.
DU Law	D23	Question A	Is the remedy functioning as intended? This must be answered NO because of ongoing exceedances at POCs and POEs and the slumping of the Original Landfill. The DOE is collecting insufficient or incorrect data because the existing sampling/data collection protocol is not supporting permanent resolution of failures of the COU remedy. <u>Problems with the Original Landfill.</u> Due to extended heavy precipitation mid-February through mid-July, 2015, there was cracking and slumping along the eastern and western edges of the waste footprint. Is this not a persisting problem? Does the DOE understand what is happening? Does it have a remedy? If so, what is it? Can necessary remedies be taken without violating the agreement about depth of digging on the site? <u>Exceedances at POCs and POEs.</u> "Reportable Conditions" occur when results of sampling for a contaminant in surface water or groundwater exceed the agreed upon state standard, which is the legal limit for that particular contaminant on the site. As noted earlier, had proper care been taken to recognize Pu migration and to establish protective radiation exposure standards, we would not now have the persistent problem of reportable conditions at POCs and POEs.		E - Question A	
Superior	S20	Question A	<u>Only a "Short-Term Protective" finding is appropriate</u> under the Comprehensive Five-Year Review Guidance. It is clear that much more must be done before it is reasonable or appropriate to conclude that the remedies will be protective in the long-term.		E - Question A	
RFSC	R1	Question B	What triggers a determination that the RAOs need to be revised (criteria, who decides, etc.)	1. What is the trigger for remedial action objective (RAO) revision?	F - Question B	Section 6.2 of this FYR discusses Question B, “Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of remedy selection still valid?” Based on the evaluation presented in this FYR report, the exposure assumptions, toxicity levels, cleanup levels, and RAOs used at the time of the remedy are still valid, and revision of the RAOs is not necessary.
RFSC	R2	Question B	What is mechanism to know if exposure mechanisms have changed?	2. How do you know if exposure mechanisms	F - Question B	

Stakeholder Input Crosswalk					
PRELIMINARY DRAFT FOR WORKING GROUP REVIEW			{Not edited}	5/4/2017	
Superior	S11	Question B/Land Use Assumptions	Question B must be answered negatively because <u>the exposure assumptions are no longer valid. These assumptions must be reevaluated because the planned land use of the areas of the Refuge impacted by the remedies on the Central Operating Unit have changed.</u> The Site Conceptual Model and assumption that the most conservative exposure scenario for a human receptor is a wildlife refuge worker is <u>no longer valid</u> because of proposed and actual changes to land use, and because of USFWS' plans to use volunteers.	have changed? 3. Question B must be answered negatively because exposure assumptions are no longer valid.	F- Question B See also C - Land Use Assumptions and Exposure Scenarios 1. What is the trigger for RAO revision? As stated in EPA guidance (EPA 2001), the FYR should include an evaluation of remedy performance and RAOs to determine if the RAOs are being met. Depending on the outcome of this evaluation, it may be necessary to modify the RAOs, modify the remedy, or conduct further response actions. The fact that a RAO is not currently being met, however, does not necessarily compel action. For example, the 2006 CAD/ROD acknowledged that residual concentrations of VOCs in groundwater in some areas "are likely to persist in the environment at Rocky Flats for decades to hundreds of years" (DOE, EPA, CDPHE 2006). The CAD/ROD recognized that Groundwater RAO 2 (see Table 4 of this fourth FYR report) may not be achieved for some time. Nevertheless, the remedy currently remains protective because active groundwater treatment systems continue to reduce contaminants entering surface water, and institutional controls restrict the use of groundwater and prohibit the construction of buildings, thereby controlling exposure.
DU Law	D30	Question B	Are the exposure assumptions, toxicity data, cleanup levels, and Remedial Action Objectives (RAOs) still valid? This must be answered NO for several reasons. 1) Pu migration in groundwater is well-documented as is its movement due to the activity of burrowing animals. (see D14) 2) The radiation exposure standards set for the cleanup are not adequately protective on either the DOE site or the Wildlife Refuge. Though the public recommended standards for a more rigorous cleanup, they were ignored. Scientific studies referenced above support the public, not the action taken by DOE and the regulators. (see D27) 3) Neither air sampling or dust sampling occur on DOE or Refuge land. Without this no one really knows what is happening in the environment. Both must occur on an ongoing basis. (see D15) 4) Only recently did DOE decide to air strip PCBs, but there is no monitoring. If this is done it must be monitored to meet an exposure standard that is protective. (see D16)	N/A	Answered in multiple locations: (1) D - Additional Monitoring, L - Literature Cited (2) B- Accelerated Cleanup (3) D - Additional Monitoring (4) J - OLF
Superior	S14	Question C	The comprehensive Five-year Review Guidance at Section 4.0 specifically calls out <u>natural disasters, such as a 100-year flood event, as requiring an affirmative answer to Question C</u> from the EPA Guidance. This makes further evaluation of the adequacy of the remedy in light of the flooding event a necessary outcome of this five-year review.	The comprehensive Five-year Review Guidance at Section 4.0 specifically calls out natural disasters, such as a 100-year flood event, as requiring an affirmative answer to Question C from the EPA Guidance. This makes further evaluation of the adequacy of the remedy in light of the flooding event a necessary outcome of this five-year review.	Section 6.3 of this FYR discusses Question C, "Has any other information come to light that could call into question the protectiveness of the remedy?" No other information collected during this FYR period has called into question the protectiveness of the remedy. The EPA FYR guidance provides examples of situations that should be considered in the FYR to answer Question C. This question need only be answered in the affirmative if the protectiveness of the remedy has been called into question. The former RFP experienced two severe weather events during this FYR period, which are discussed in relation to remedy protectiveness in Sections 6.1.3.1, 6.1.4.2, and 6.3 of this fourth FYR report.
RFSC	R3	Question C	What is the basis (analytical data?) for triggering an evaluation of something that doesn't lead back to the RAO? (associated with air and soil monitoring questions).		
Broomfield	B6	None	With the ongoing issues with uranium, Broomfield will oppose any proposal to amend the uranium standard that results in a higher regulatory concentration, reduces the monitoring frequency, or alters the method of data averaging for reporting. <u>The CERCLA review should not make references to the current EPA drinking water standard for uranium since the drinking water standard does not apply to the Site.</u> The site-specific standard for uranium should be the only threshold used to determine whether or not the uranium concentrations leaving the Site comply with the regulatory requirements.	The CERCLA review should not make references to the current EPA drinking water standard for uranium since the drinking water standard does not apply to the site.	DOE-LM acknowledges that the uranium MCL is not applicable to the COU; the MCL is a nationwide health-based standard applicable to public water supply systems. Comparison of uranium concentrations to the drinking water standard in the FYR report is included simply to offer perspective on the quality of surface water at the COU boundary.
Broomfield	B1	None	Broomfield would like to note that this is only the second CERCLA Five-Year Review since the final physical and regulatory closure occurred at the Site in 2006.		Under CERLCA, the trigger for the first FYR was the signing of the CAD/ROD for OU3 in 1997 (that is, the selection of the remedial action). The first FYR report evaluated data from 1997 - 2001. The site was closed at the end of 2005. The second FYR report evaluated data from 2002 - 2006, which included one year of post-closure data. The third FYR report evaluated data from 2007 - 2011, and is the first review to include five continuous years of post-closure data. This fourth FYR report evaluated data from 2012- 2016 and is the second report to include five continuous years of post-closure data.
Broomfield	B9	None	We recommend the <u>continuation of the Quarterly Technical Meetings</u> and request that the value of these meetings be acknowledged in the Fourth CERCLA Five-Year Review. The Quarterly Technical Meeting should occur four months after RFLMA technical documents are released. This will provide the downstream communities with sufficient time to evaluate the data, activities, and other Information contained in the documents prior to the meetings. Broomfield recently provided DOE-LM with the proposed technical meeting dates for 2017.	Recommend continuation of the Quarterly Technical Meetings and request they occur four months after RFLMA technical documents are released	DOE-LM will coordinate with interested stakeholders regarding meeting frequency and timing, as requested.

Stakeholder Input Crosswalk						
PRELIMINARY DRAFT FOR WORKING GROUP REVIEW				{Not edited}	5/4/2017	
DU Law	D22	None	The last biennial report was in 2005. DOE-LM has not documented the sample analysis of such media, filed any RCRA biennial reports nor provided regulatory authority to treat, store or dispose of the contaminants of concern at the Rocky Flats Site.	The Resource Conservation and Recovery Act (RCRA) permit for the Rocky Flats Site is limited to Hazardous Waste Generator. The last documented biennial report was in 2005. Yet DOE-LM currently utilizes erosion control materials (wattles, air stripping and matting) to mitigate the migration of contaminants of concern. DOE-LM has not documented the sample analysis of such media, filed any RCRA biennial reports nor provided regulatory authority to treat, store or dispose of the contaminants of concern at the Rocky Flats Site.	N - Hazardous Waste	<p>The RFP previously held a RCRA permit as a hazardous waste treatment, storage, and disposal facility (TSD) and was required to submit biennial hazardous waste generator reports in accordance with 40 CFR 264.75. The RCRA permit was terminated in 2006. DOE-LM rarely generates hazardous waste in the conduct of legacy management activities and as a small, or very small, quantity generator is exempt from generator biennial reporting requirements. Sample results associated with wastes generated at the site are documented in project files and are provided to the disposal facilities that receive wastes from the site.</p> <p>As a previous TSD facility, DOE-LM is required to submit a biennial report in accordance with Section 3016 of RCRA. This report, Inventory of Federal Hazardous Waste Activities at Formerly Owned or Operated Federal Facilities, includes a description of the location of the facility and the amount, nature, and toxicity of the hazardous waste at the site. The most recent 3016 biennial report was filed in 2016.</p>
DU Law	D14	Literature Cited	The Pu in the environment of both the DOE and Refuge land is being constantly recirculated... <u>What is now buried is likely someday to be brought to the surface for wider dispersal by wind, water, fires or other means.</u> Pu particles too tiny to be seen but not too small to do harm are being made available to be inhaled...	Several articles and reports were cited in the input received from stakeholders. These citations were associated with input related to various topics including implementation of accelerated actions, burrowing animals, dust sampling, Pu migration, and risk.	L - Literature Cited	These documents, including but not limited to those listed in Appendix D, Documents Reviewed, were reviewed and do not affect the conclusions of this FYR.
DU Law	D26	Literature Cited	<p>When DOE, EPA and CDPHE personnel call the site "safe," they mean that the radiation exposure standards they established are, with minor exceptions, not violated. However, the National Academy of Sciences affirmed in their 2006 BEIR study that there is <u>no such thing as a safe radiation exposure; any exposure is potentially harmful.</u></p> <p>...Columbia University scientists found that <u>a single Pu particle taken into the body can be harmful, possibly fatal.</u>...Given that exposure to a single particle of Pu taken into the body can be harmful, protecting what CERCLA calls the maximally exposed individual (the Wildlife Refuge worker) is senseless.</p>		L - Literature Cited	
DU Law	D21	Cleanup/AME Work	<p>The AME team's conclusion of inconsequential Pu migration at Rocky Flats flies in the face of one of their own reports. This report maintains that cleanup of Pu in the soil at Rocky Flats even to citizen-recommended 10 picocuries per gram, rather than the 50+ actually adopted, would result in conditions of either a 10-year or a 100-year storm in failure at certain downstream areas to meet the Colorado State standard for Pu in surface water of 0.15 picocuries per liter. Though this contradictory report was part of the AME work, it is not cited in the final AME report.</p> <p>...DOE and the regulators are far from reality when they accept the AME conclusion that Pu "is relatively immobile."</p>		L- Literature Cited	
DU Law	D18	Literature Cited	<p>...before the AME existed, environmental engineer M. Iggy Litaor, with instruments set up in soil at Rocky Flats during the unusually wet spring of 1995, detected substantial movement of a large quantity of Pu in subsurface soil...Yet DOE, EPA and CDPHE set exposure standards for the "cleanup" based on the AME conclusion.</p> <p>The AME conclusion that migration of Pu oxide at Rocky Flats would be insignificant is countered by findings at other locations. Research has focused on the propensity of minuscule Pu oxide particles to attach to submicrometer-size colloids consisting of organic or inorganic compounds. Such colloids can transport the Pu considerable distances in groundwater. Annie B. Kersting, a geochemist at DOE's Livermore Lab...</p>		L - Literature Cited	

Stakeholder Input Crosswalk						
PRELIMINARY DRAFT FOR WORKING GROUP REVIEW				{Not edited}	5/4/2017	
Superior	S2	Not Relevant	<p>Guesswork does not suffice to answer these critical questions. That the soils and dusts mobilized during construction will have contamination should be assumed and as DOE is responsible for that contamination, DOE must be in a position, using actual data rather than guesses and assumptions, to reassure everyone from constructions workers to members of the downwind public, that they are safe.</p> <p>We are also quite concerned about the ultimate disposal of dirt and other debris removed during construction activities on the site regardless of whether generated during construction of the visitor's center, Greenway underpass and trails, or the proposed highway. One assumes all of this dirt and debris is potentially contaminated. Will it be evaluated so that fully appropriate and lawful handling and disposal practices will be followed? Where will it be disposed? How will it be hauled if removed off of the Site?</p>	Not relevant to FYR, as determined in 03/22/17 meeting with DOE, EPA, CDPHE.	Not Included in Appendix A	
Superior	S9	Not Relevant	<p>...the Comprehensive Conservation Plan/Environmental Impact Statement (CCP/EIS) created by USFWS in an attempt to comply with the National Environmental Policy Act (NEPA) at the creation of the Refuge, did not evaluate any land use proposals involving the construction or use of a highway or bike trails across the Woman Creek and Walnut Creek drainages. Apparently because of this limitation, none of the evaluation of exposures or remedies at the site considered these issues.Further, and more importantly, the CCP/EIS makes clear that a "definitive analysis of the direct impacts of potential transportation improvements is outside the scope of this CCP/EIS." In fact, the CCP/EIS specifically excluded what is now being presented as the Jefferson Parkway Public Highway Authority proposal when it stated that "a detailed analysis of any specific type of transportation improvement along Indiana Street, such as creation of a four-lane divided highway, is outside the scope of this CCP/EIS". Likewise, the only trail systems described in the CCP/EIS accessed the Refuge well North of Walnut Creek and outside of the Wind Blown Exposure Unit.</p>	Not relevant to FYR, as determined in 03/22/17 meeting with DOE, EPA, CDPHE.	Not Included in Appendix A	
WCRA	W2	Not Relevant	<p>Include Discussion of the Adaptive Management Plan, Including Technical Points from the Authority's Position Paper.</p> <p>The Third Five-Year Review described the Adaptive Management Plan (AMP), which was triggered by concern about proposed breaching of the terminal pond dams. This included a discussion of the data to be collected and noted the delayed timeframe for reconsidering breaching of the terminal pond dams (delayed to 2018-2020). It seems appropriate to provide an update on that effort in the upcoming five-year review. For consideration as part of that update, the Authority offers the findings from its evaluation of historical and AMP data. That analysis is presented in a position paper describing a technical basis for continued opposition to breaching the Pond C-2 dam.</p> <p>WCRA recommends not breaching the Pond C-2 dam, but instead continuing to operate in flowthrough mode with a contingency plan to trigger closing the dam to retain water under specific critical circumstances. This proposed solution would reduce pre-AMP operating costs by eliminating routine batch-and-release operations and evaporative depletions, while expanding habitat. WCRA believes this proposed solution is supported by the Site data and meets the Purpose and Needs noted by DOE in the Environmental Assessment for dam breach, while maintaining a proven-effective contingency to protect downstream water quality.</p>	Not relevant to FYR, as determined in 03/22/17 meeting with DOE, EPA, CDPHE.	Not Included in Appendix A	

Stakeholder Input Crosswalk						
PRELIMINARY DRAFT FOR WORKING GROUP REVIEW				{Not edited}	5/4/2017	
Broomfield	B4	Not Relevant	Broomfield opposes breaching the terminal dams until the successful demonstration that the remedy continues to function properly without significant issues, changes to site conditions, or water quality exceedances for two consecutive CERCLA Five-Year reviews. Successful demonstration of the remedy should be based on the following criteria, and the criteria should be cited in the Fourth CERCLA Five-year Review: 1. No water quality exceedances or elevated levels at any surface water points of compliance (POCs), surface water Points of Evaluation (POEs), surface water monitoring at Indiana street (regardless of the designation as a POC, or not), and groundwater Area of Concern (AOC) wells. 2. Surface water and groundwater monitoring are not showing increasing trends. 3. Sustained functional performance of the groundwater treatment units without changes, modifications, enhancements, or alterations to the treatment process. 4. No significant erosion activities, landslides, slippage, slope failure or other geological activity where surface or subsurface soils are mobilized or disturbed. 5. No abnormal or unforeseen condition that could have an adverse effect on the breaching of the dams.	Not relevant to FYR, as determined in 03/22/17 meeting with DOE, EPA, CDPHE.	Not Included in Appendix A	
DU Law	D3	Not Relevant	All input relating to Cook case.	Not relevant to FYR, as determined in 03/22/17 meeting with DOE, EPA, CDPHE.	Not Included in Appendix A	

Source	Number	Group	Input	Appendix I Response Location
Broomfield	B1	None	Broomfield would like to note that this is only the second CERCLA Five-Year Review since the final physical and regulatory closure occurred at the Site in 2006.	O - FYR Report
Broomfield	B2	Question A	Based on the variability of the analytical data and Site inspection reports, it is clear <u>the Site has not fully stabilized. The Site continues to have reportable conditions at points of evaluation (POE) on Woman Creek and Walnut Creek.</u> In addition, the water quality sampling at the Walnut Creek point of compliance (WALPOC) recently exceeded the uranium standards. Although the sampling result at WALPOC didn't exceed the 12-month rolling average, it was the first time that elevated levels have been observed at a regulatory point of compliance after closure.	E - Question A
Broomfield	B3	Question A	With the documented instability in the water sampling results, continued ground surface movements, and ongoing revegetation efforts, <u>there has not been an opportunity to develop a reliable baseline and ensure the remedy is functioning per its intended design.</u>	E - Question A
Broomfield	B4	Not Relevant	Broomfield opposes breaching the terminal dams until the successful demonstration that the remedy continues to function properly without significant issues, changes to site conditions, or water quality exceedances for two consecutive CERCLA Five-Year reviews. Successful demonstration of the remedy should be based on the following criteria, and the criteria should be cited in the Fourth CERCLA Five-year Review: 1. No water quality exceedances or elevated levels at any surface water points of compliance (POCs), surface water Points of Evaluation (POEs), surface water monitoring at Indiana street (regardless of the designation as a POC, or not), and groundwater Area of Concern (AOC) wells. 2. Surface water and groundwater monitoring are not showing increasing trends. 3. Sustained functional performance of the groundwater treatment units without changes, modifications, enhancements, or alterations to the treatment process. 4. No significant erosion activities, landslides, slippage, slope failure or other geological activity where surface or subsurface soils are mobilized or disturbed. 5. No abnormal or unforeseen condition that could have an adverse effect on the breaching of the dams.	Not Included in Appendix A
Broomfield	B5	Question A	The Site continues to have issues meeting uranium surface water standards at WALPOC...Based on continuing issues at the WALPOC and GS-10, along with the variability in the quality of surface water, <u>the Fourth Five-Year Review should include a detailed action plan to evaluate and address these ongoing problems.</u> Based on these recent exceedances, it is clear that the remedy has not stabilized and uranium continues to migrate both on and off-site.	E - Question A
Broomfield	B6	None	With the ongoing issues with uranium, Broomfield will oppose any proposal to amend the uranium standard that results in a higher regulatory concentration, reduces the monitoring frequency, or alters the method of data averaging for reporting. The CERCLA review should not make references to the current EPA drinking water standard for uranium since the drinking water standard does not apply to the Site. The site-specific standard for uranium should be the only threshold used to determine whether or not the uranium concentrations leaving the Site comply with the regulatory requirements.	M - Uranium maximum contaminant level (MCL)

Broomfield	B7	PLF	<p>...the treated effluent downstream of the PLFTS has frequently exceeded the Site's water quality standards...the consultative process between DOE-LM and federal and state regulators has been triggered every calendar year since closure...</p> <p>The past two Five-Year CERCLA Reviews identified continuing problems with the water quality at the Present Landfill. Broomfield requests that the Fourth CERCLA Five-Year Review include a clearly defined corrective action plan to address this ongoing water quality issue. When the water quality in the Present Landfill pond exceeds applicable standards, any discharge or release from the pond should immediately cease until subsequent sampling demonstrates that the water quality meets the RFLMA standards.</p>	K - PLF
Broomfield	B8	GW Treatment Systems	<p>...the Solar Pond Treatment (SPT) Unit has been operating in "treatability mode" since closure. Broomfield recommends that DOE-LM develop and implement a long-term corrective action for the SPT unit. The uranium and nitrate levels entering the SPT unit, as well as the levels leaving the SPT unit, continue to be elevated. The Fourth CERCLA Five-Year Review should include a specific list of water treatment criteria that the SPT unit needs to meet. In the absence of such criteria, the ability to demonstrate the short- and long-term effectiveness of the groundwater treatment units becomes highly suspect and questionable.</p>	H - Groundwater Treatment Systems
Broomfield	B9	None	<p>We recommend the continuation of the Quarterly Technical Meetings and request that the value of these meetings be acknowledged in the Fourth CERCLA Five-Year Review. The Quarterly Technical Meeting should occur four months after RFLMA technical documents are released. This will provide the downstream communities with sufficient time to evaluate the data, activities, and other Information contained in the documents prior to the meetings. Broomfield recently provided DOE-LM with the proposed technical meeting dates for 2017.</p>	P - Quarterly Technical Meetings
Broomfield	B10	FYR Process	<p>In closing, Broomfield would formally request a sixty-day (60-day) public comment period when the Fourth CERCLA Five-Year Review document is released in 2017.</p>	A - FYR Process
Broomfield	B11	FYR Process	<p>...we would like to schedule a future meeting to review the disposition of Broomfield's comments. Finally, we ask that DOE-LM respond to our comments on an individual basis rather than grouping comments and providing general responses.</p>	A - FYR Process
DU Law	D1	FYR Process	<p>The FYR is not restricted to the COU, but also includes the Refuge.</p>	A - FYR Process
DU Law	D2	Additional Monitoring	<p>FYR should include off-site, or Refuge, testing.</p>	D - Additional Monitoring
DU Law	D3	Not Relevant	<p>All input relating to Cook case.</p>	Not Included in Appendix A
DU Law	D4	Land Use Assumptions	<p>Significant changes in circumstances, including burgeoning housing developments adjacent to the site and proposed increased public access to the Refuge, have rendered the COU remedy's physical and institutional controls obsolete and ineffective.</p>	C - Land Use Assumptions and Exposure Scenarios
DU Law	D5	FYR Process	<p>A critical issue to the Community is the obvious conflict of interest posed by a DOE-lead FYR...</p>	A - FYR Process
DU Law	D6	Cleanup	<p>The DOE has never adequately explained how the Rocky Flats cleanup could legitimately be reduced from 65 years and \$37billion to 10 years and \$7billion without substantial compromises in the work that would be completed resulting in compromises to the remedy's protectiveness of human health and the environment.</p> <p>For example, the RFCA "accelerated actions" did not completely describe the environmental conditions at Rocky Flats, nor did the final response action ensure that residual contamination did not present an unacceptable risk to human health or the environment. Any data collected from gamma spectroscopy or x-ray fluorescence are inappropriate for decision making in the RI/FS/CRA conducted by Kaiser-Hill because they do not meet specific RI/FS quality assurance requirements established by the EPA.</p>	B- Accelerated Cleanup
DU Law	D7	FYR Process	<p>This FYR evaluation process proposed by the DOE is entirely circular logic riddled with conflicts of interest.</p>	A - FYR Process

DU Law	D8	Cleanup	<p>The history of what actually took place during the cleanup is complex, secretive and poorly documented, particularly related to how specific actions" were tied to changes in the cleanup standards. Trade-off decisions about standards and promised levels of cleanup were inappropriately and unilaterally made by the DOE, and according to the DOE's own study these decisions were more driven by Congressional pressures on funding and deadlines than based on scientific evidence of protectiveness.</p> <p>The DOE also has used the shield of National Security to close the site, essentially controlling every aspect of data collection and analysis. The entire history of this site lacks transparency and oversight by anyone outside of the DOE's influence.</p>	B- Accelerated Cleanup
DU Law	D9	Cleanup	<p>There is significant long-standing distrust and discord between the Community and the DOE as a result of the conduct of the DOE and its contractors during the actual operations of the Rocky Flats Plant, the incomplete cleanup and the stonewalling of post-cleanup concerns. The Community...believe that the cleanup standards were inappropriately compromised. They also believe that sampling data for analysis is selectively collected or presented in summary form to support findings that favor the DOE.</p>	B- Accelerated Cleanup
DU Law	D10	FYR Process	<p>The DOE must base its findings on a fresh and expanded analysis methodology incorporating an independent authority to perform a scientifically rigorous evaluation of the protectiveness of the COU remedy.</p>	A - FYR Process
DU Law	D11	Cleanup	<p>The DOE must fully engage with the Community to finally resolve the distrust and discord that are the natural consequences of the DOE's responsibility for the contamination of this site, the incomplete cleanup, and its subsequent stonewalling of the Community's concerns.</p> <p>A complete depiction of the distrust and discord between the Community and the DOE at Rocky Flats would fill volumes and solve little. Suffice it to say that years of misdirection, stonewalling and dismissal of public concerns by the DOE has compromised its credibility and destroyed any trust that the DOE is serving and protecting much beyond but its own interests.</p>	B- Accelerated Cleanup
DU Law	D12	FYR Process	<p>If the DOE is unable or unwilling to cure the shortcomings in its approach to this FYR then the EPA must intervene with a finding of non-concurrence if finds reasonable grounds that the DOE refuses to provide sufficient data and observations to support its protectiveness determination.</p>	A - FYR Process
DU Law	D13	Question A	<p>The contaminants sampling data collected under the current RFLMA is inadequate to assess the protectiveness of the COU remedy.</p>	E - Question A
DU Law	D14	Additional Monitoring	<p>The Pu in the environment of both the DOE and Refuge land is being constantly recirculated....What is now buried is likely someday to be brought to the surface for wider dispersal by wind, water, fires or other means. Pu particles too tiny to be seen but not too small to do harm are being made available to be inhaled...</p>	<p>D - Additional Monitoring</p> <p>L - Literature Cited</p>
DU Law	D15	Additional Monitoring	<p>Competent ongoing air sampling should occur on both the DOE site at Rocky Flats and the Wildlife Refuge...Ongoing sampling of respirable dust should occur on both DOE land and the Refuge.</p>	D - Additional Monitoring
DU Law	D16	OLF	<p>Highly toxic PCBs are being air-stripped from groundwater into the environment, mainly in the Original Landfill.</p>	J - OLF
DU Law	D17	Question A	<p>The water sampling protocol the DOE has in place is limited by flawed assumptions and weather-related failures. An example is the DOE's assumptions about plutonium migration. What happens with Pu in the Rocky Flats environment in unusually wet conditions, such as the flood of September 11-13, 2013 and heavy rain in February to mid-June, 2015?</p>	E - Question A

DU Law	D18	Literature Cited	<p>...before the AME existed, environmental engineer M. Iggy Litaor, with instruments set up in soil at Rocky Flats during the unusually wet spring of 1995, detected substantial movement of a large quantity of Pu in subsurface soil...Yet DOE, EPA and CDPHE set exposure standards for the "cleanup" based on the AME conclusion.</p> <p>The AME conclusion that migration of Pu oxide at Rocky Flats would be insignificant is countered by findings at other locations. Research has focused on the propensity of minuscule Pu oxide particles to attach to submicrometer-size colloids consisting of organic or inorganic compounds. Such colloids can transport the Pu considerable distances in groundwater. Annie B. Kersting, a geochemist at DOE's Livermore Lab...</p>	L - Literature Cited
DU Law	D19	Flooding	No samples of Pu or other toxins leaving the site during the flood were taken, because the radiation monitors were so inundated with water that they shut down. So we have no record of the quantity of toxins passing the monitors and leaving the site. Besides monitors that didn't work, sheet flooding occurred in the 2013 event, and no effort has ever been made to monitor Pu or other toxins leaving the site under sheet flooding conditions.	I - Flooding
DU Law	D20	Cleanup/AME work	<p>...the cleanup at Rocky Flats, based as it is on the work of the AME team, looks like a short-term solution to a long-term problem. The AME researchers, with all their confidence in modeling, <u>made no effort to predict conditions at and near Rocky Flats 500 years from now, much less 10,000 or 100,000 years from now.</u></p>	B- Accelerated Cleanup
DU Law	D21	Cleanup/AME Work	<p>The AME team's conclusion of inconsequential Pu migration at Rocky Flats flies in the face of one of their own reports. This report maintains that cleanup of Pu in the soil at Rocky Flats even to citizen-recommended 10 picocuries per gram, rather than the 50+ actually adopted, would result in conditions of either a 10-year or a 100-year storm in failure at certain downstream areas to meet the Colorado State standard for Pu in surface water of 0.15 picocuries per liter. Though this contradictory report was part of the AME work, it is not cited in the final AME report.</p> <p>...DOE and the regulators are far from reality when they accept the AME conclusion that Pu "is relatively immobile."</p>	L- Literature Cited
DU Law	D22	None	The last biennial report was in 2005. DOE-LM has not documented the sample analysis of such media, filed any RCRA biennial reports nor provided regulatory authority to treat, store or dispose of the contaminants of concern at the Rocky Flats Site.	N - Hazardous Waste

DU Law	D23	Question A	<p>Is the remedy functioning as intended? This must be answered NO because of ongoing exceedances at POCs and POEs and the slumping of the Original Landfill.</p> <p>The DOE is collecting insufficient or incorrect data because the existing sampling/data collection protocol is not supporting permanent resolution of failures of the COU remedy.</p> <p>Problems with the Original Landfill. Due to extended heavy precipitation mid-February through mid-July, 2015, there was cracking and slumping along the eastern and western edges of the waste footprint. Is this not a persisting problem? Does the DOE understand what is happening? Does it have a remedy? If so, what is it? Can necessary remedies be taken without violating the agreement about depth of digging on the site?</p> <p>Exceedances at POCs and POEs. "Reportable Conditions" occur when results of sampling for a contaminant in surface water or groundwater exceed the agreed upon state standard, which is the legal limit for that particular contaminant on the site. As noted earlier, had proper care been taken to recognize Pu migration and to establish protective radiation exposure standards, we would not now have the persistent problem of reportable conditions at POCs and POEs.</p>	E - Question A
DU Law	D24	Question A	<p>The DOE's limited water sampling data collection strategy overlooks the possibility that <u>a failure of the remedy will cause contaminants to rise to the surface and also possibly become airborne rather than flow out through the surface or groundwater.</u></p>	E - Question A
DU Law	D25	Additional Monitoring	<p>The Community's repeated requests for soil sampling and air monitoring has been unilaterally denied to date.</p>	D - Additional Monitoring
DU Law	D26	Literature Cited	<p>When DOE, EPA and CDPHE personnel call the site "safe," they mean that the radiation exposure standards they established are, with minor exceptions, not violated. However, the National Academy of Sciences affirmed in their 2006 BEIR study that there is <u>no such thing as a safe radiation exposure; any exposure is potentially harmful.</u></p> <p>...Columbia University scientists found that <u>a single Pu particle taken into the body can be harmful, possibly fatal.</u>...Given that exposure to a single particle of Pu taken into the body can be harmful, protecting what CERCLA calls the maximally exposed individual (the Wildlife Refuge worker) is senseless.</p>	L - Literature Cited
DU Law	D27	Cleanup	<p><u>The radiation exposure standards set for the cleanup are not adequately protective on either the DOE site or the Wildlife Refuge.</u> Though the public recommended standards for a more rigorous cleanup, they were ignored. Scientific studies...support the public, not the action taken by DOE and the regulators.</p>	B- Accelerated Cleanup
DU Law	D28	Cleanup	<p>According to a report published in 2000, The National Research Council "finds that much regarding DOE's intended reliance on long-term stewardship is at this point problematic." This is a polite way of saying that long-term stewardship doesn't work at all DOE sites. It won't work at Rocky Flats without starting over, setting exposure standards that are actually protective and then cleaning the site to the maximum extent possible with existing technology.</p>	B- Accelerated Cleanup

DU Law	D29	FYR Process	<p>Although there is no statutory requirement for the government agencies doing the CERCLA FYR to prepare the text of the review without the public having the opportunity to see it and comment on it such a process would benefit all parties. <u>The DOE's Review and the EPA's Review concurrence letter must be completed and made available to the public well in advance of the final date for completion of the Review. The public should have at least one month in which to comment on the Review, and the DOE and the EPA must provide their responses to the public by the date for completion of the Review.</u> The rules for commenting and receiving responses must be similar to those used in the CERCLA process.</p>	A - FYR Process
DU Law	D30	Question B	<p>Are the exposure assumptions, toxicity data, cleanup levels, and Remedial Action Objectives (RAOs) still valid? This must be answered NO for several reasons.</p> <p>1) Pu migration in groundwater is well-documented as is its movement due to the activity of burrowing animals. (see D14)</p> <p>2) The radiation exposure standards set for the cleanup are not adequately protective on either the DOE site or the Wildlife Refuge. Though the public recommended standards for a more rigorous cleanup, they were ignored. Scientific studies referenced above support the public, not the action taken by DOE and the regulators. (see D27)</p> <p>3) Neither air sampling or dust sampling occur on DOE or Refuge land. Without this no one really knows what is happening in the environment. Both must occur on an ongoing basis. (see D15)</p> <p>4) Only recently did DOE decide to air strip PCBs, but there is no monitoring. If this is done it must be monitored to meet an exposure standard that is protective. (see D16)</p>	<p>Answered in multiple locations:</p> <p>(1) D - Additional Monitoring, L - Literature Cited</p> <p>(2) B- Accelerated Cleanup</p> <p>(3) D - Additional Monitoring</p> <p>(4) J - OLF</p>
RFSC	R1	Question B	What triggers a determination that the RAOs need to be revised (criteria, who decides, etc.)	F - Question B
RFSC	R2	Question B	What is mechanism to know if exposure mechanisms have changed?	F - Question B
RFSC	R3	Question C	What is the basis (analytical data?) for triggering an evaluation of something that doesn't lead back to the RAO? (associated with air and soil monitoring questions).	G - Question C
RFSC	R4	Additional Monitoring	How can you know whether air and soil conditions have changed if there is no monitoring?	D - Additional Monitoring
Superior	S1	Land Use Assumptions	<p>...we remain very concerned with the continued lack of air monitoring. As discussed below, various <u>land use changes</u> are planned in areas impacted by contamination historically coming from the Legacy Management area. To justify deletion of the areas now constituting the Wildlife Refuge from CERCLA, <u>assumptions were made about the lack of soil disturbance and human exposures that are now very questionable</u> given plans for a DOE funded visitor center, trail construction as part of the Greenway project and future highway construction. <u>No assessment has been made of the potential for these activities to disturb contaminated soils and mobilize them off of the Site or to create unanticipated exposures of people on the Site.</u></p>	C - Land Use Assumptions and Exposure Scenarios
Superior	S2	Not Relevant	<p>Guesswork does not suffice to answer these critical questions. That the soils and dusts mobilized during construction will have contamination should be assumed and as DOE is responsible for that contamination, DOE must be in a position, using actual data rather than guesses and assumptions, to reassure everyone from constructions workers to members of the downwind public, that they are safe.</p> <p>We are also quite concerned about the ultimate disposal of dirt and other debris removed during construction activities on the site regardless of whether generated during construction of the visitor's center, Greenway underpass and trails, or the proposed highway. One assumes all of this dirt and debris is potentially contaminated. Will it be evaluated so that fully appropriate and lawful handling and disposal practices will be followed? Where will it be disposed? How will it be hauled if removed off of the Site?</p>	Not Included in Appendix A

Superior	S3	Land Use Assumptions	The adequacy of remedies at Rocky Flats are limited by specific land use assumptions that are no longer valid. In particular, the impacts on human use and occupancy in the Wind Blown Exposure Area which runs east from the former industrial zone to Indiana street. Much of this area was incorporated into the central operating unit now under Legacy Management while the rest is in the Wildlife Refuge. Our primary focus is on those lands within both the Woman Creek and Walnut Creek drainages.	C - Land Use Assumptions and Exposure Scenarios
Superior	S4	Land Use Assumptions/Exposure Scenarios	For reasons that are not clear, "exposure to subsurface soil/subsurface sediment was not evaluated for the WRV." Apparently, the assumption was that a WRV was never going to touch any dirt or breathe any dust. This is obviously an error as the documents cited above demonstrate that the exposure pathways to the Contaminants of Concern (COCs) are complete and significant.	C - Land Use Assumptions and Exposure Scenarios
Superior	S5	Land Use Assumptions/Exposure Scenarios	Wildlife refuge worker and wildlife refuge visitor were the only human receptors evaluated in the RI/FS for Rocky Flats. This highly limited view of human receptors and equally limited exposure scenarios were based upon the assumed land use as a wildlife refuge. Other human receptors such as construction workers building highways or bike paths, or volunteers working on trails and other maintenance activities, were never considered and no such exposures have been formally evaluated. These limiting assumptions are no longer valid and "guesses" as to lower exposures to the contrary are not helpful nor reassuring.	C - Land Use Assumptions and Exposure Scenarios
Superior	S6	Land Use Assumptions/Exposure Scenarios	The potential use of volunteers to build trails now planned for the first time in the Woman and Walnut Creek drainages is especially concerning. These people would most certainly encounter soils that must be assumed to be contaminated with a variety of contaminants including VOCs, arsenic, and radioactive elements such as plutonium.	C - Land Use Assumptions and Exposure Scenarios
Superior	S7	Land Use Assumptions/Exposure Scenarios	Several of the cited documents make it clear that exposure assessments assumed neither of these human receptors is engaged in construction activities or will experience substantial exposure to contaminated soils. These limitations, while convenient, are not consistent with the fashion in which USFWS intends to manage the Refuge...	C - Land Use Assumptions and Exposure Scenarios
Superior	S8	Land Use Assumptions	The most extensive soil disturbance apparently anticipated for WRW was post-hole digging and vegetation management. The RI/FS did not calculate the risks to construction workers building trails or highways. None of these assessments anticipated that WRW or volunteers would be engaged in construction of trails such as are now proposed as part of the Greenway project.	C - Land Use Assumptions and Exposure Scenarios
Superior	S9	Not Relevant	...the Comprehensive Conservation Plan/Environmental Impact Statement (CCP/EIS) created by USFWS in an attempt to comply with the National Environmental Policy Act (NEPA) at the creation of the Refuge, did not evaluate any land use proposals involving the construction or use of a highway or bike trails across the Woman Creek and Walnut Creek drainages. Apparently because of this limitation, none of the evaluation of exposures or remedies at the site considered these issues. Further, and more importantly, the CCP/EIS makes clear that a "definitive analysis of the direct impacts of potential transportation improvements is outside the scope of this CCP/EIS." In fact, the CCP/EIS specifically excluded what is now being presented as the Jefferson Parkway Public Highway Authority proposal when it stated that "a detailed analysis of any specific type of transportation improvement along Indiana Street, such as creation of a four-lane divided highway, is outside the scope of this CCP/EIS". Likewise, the only trail systems described in the CCP/EIS accessed the Refuge well North of Walnut Creek and outside of the Wind Blown Exposure Unit.	Not Included in Appendix A

Superior	S10	Land Use Assumptions	The performance and adequacy of the remedies for the Central Operating Unit, have never been evaluated in light of the actual and planned land use changes. As the operation of these remedies directly impacts the migration of contamination into the Refuge east of the Central Operating Unit, this Five-year Review must now require that evaluation.	C - Land Use Assumptions and Exposure Scenarios
Superior	S11	Question B/Land Use Assumptions	Question B must be answered negatively because <u>the exposure assumptions are no longer valid. These assumptions must be reevaluated because the planned land use of the areas of the Refuge impacted by the remedies on the Central Operating Unit have changed.</u> The Site Conceptual Model and assumption that the most conservative exposure scenario for a human receptor is a wildlife refuge worker <u>is no longer valid</u> because of proposed and actual changes to land use, and because of USFWS' plans to use volunteers.	F- Question B See also C - Land Use Assumptions and Exposure Scenarios
Superior	S12	Land Use Assumptions/Exposure Scenarios	"...the RI/FS and CAD/ROD did not evaluate the specific risks in the wind blown area because none of the then planned land uses involved construction or even meaningful human use in this area. There were to be no trails or facilities, so even visits by a WRW would be rare. These land use changes are critical because while most of the Peripheral Operating Unit has suffered only small amounts of known impact from the industrial activities at Rocky Flats, "plutonium-239/240 exists above background in surface soil in the Wind Blown EU". There can be no valid assumptions about human exposures from changed land uses in the Wind Blown Exposure Unit, especially in the Woman and Walnut Creek drainages, based upon prior work because these changed land uses and resulting exposures were not previously considered.	C - Land Use Assumptions and Exposure Scenarios
Superior	S13	Flooding	Additionally, <u>increased exposures to radioactive materials mobilized during flooding events has not been evaluated.</u> These radioactive materials may be found in sediment or groundwater.	I - Flooding
Superior	S14	Question C	The comprehensive Five-year Review Guidance at Section 4.0 specifically calls out natural disasters, such as a 100-year flood event, as requiring an affirmative answer to Question C from the EPA Guidance. This makes further evaluation of the adequacy of the remedy in light of the flooding event a necessary outcome of this five-year review.	G - Question C
Superior	S15	Flooding	"...much of the <u>desired data does not seem to exist due to equipment limitations, equipment failures and because of road damage</u> on both Indiana and Hwy 93 caused by the flooding. That extreme storm events can mobilize uranium in unexpected ways seems obvious. <u>The resulting discharge of contaminants was not anticipated when the remedy was selected and due to the equipment failures is unmeasured and unevaluated.</u> Because of these issues whether or not the remedies are protective of human health and the environment, is in question...	I - Flooding
Superior	S16	Flooding	There has been no effort to sample sediments or groundwater to the east of the COU along the Walnut or Woman Creek drainages even though the magnitude of the flooding events and the Wright Water Engineering report make it clear that contaminated sediments and water moved from the COU onto the Refuge and perhaps even east of Indiana. The flooding event makes it critical that new sampling activities take place in order to evaluate whether flood control efforts on the COU are adequate to protect the remedies and whether additional remedial efforts to reduce the potential for human exposures east of the COU are necessary.	I - Flooding

Superior	S17	Flooding	<p>It is clear that the engineering features in place did not function well during the flooding event. Sampling systems were off-line and overwhelmed, so there is simply no data from which any conclusion can be reached about the degree to which contaminants were mobilized and, therefore, redeposited in areas where the land use changes will create public contact and exposure. The lack of data does not justify the cavalier assumption that nothing bad has happened. In fact, the opposite is true and because DOE has not bothered to look, we do not know whether substantial contaminant levels now exist in areas where increased human contact and use is planned. The inability of the remedies to cope with the flooding event must be corrected or nobody can have faith in whether or not public health and environment is being adequately protected.</p>	I - Flooding
Superior	S18	Land Use Assumptions	<p>Given the changes in proposed land use in these areas and the flooding event, it is not reasonable to conclude that exposure assumptions conducted ten or more years ago are still valid. New exposure pathways now exist that have never been evaluated due to changes in land use and the 100-year flooding event. Both of these very significant changes happened within the last five years and directly impact the reliability of the human exposures scenarios previously used to select the remedies.</p>	<p>C - Land Use Assumptions and Exposure Scenarios</p> <p>See also I - Flooding</p>
Superior	S19	Land Use Assumptions	<p>DOE and EPA specifically rejected remedies for the Wind Blown Exposure Area and Central Operating Unit that involved soil removal because of the increased risk posed to workers involved in the removal of contaminated soil (associated with the operation of heavy equipment), and the risk posed to the public from transportation of these soils to disposal sites. These concerns pre-dated the flooding event which may well have deposited additional contaminated soils and mobilized contamination in groundwater potentially magnifying the problems.</p> <p>Certainly these concerns are still valid and we see no reason that DOE, EPA, FWS or CDPHE can now simply ignore their earlier positions. The planned new land uses make it impossible to ignore these risks as they will involve precisely the same uncontrolled exposure risks previously noted. There is no data or other information sufficient to establish that the current remedies are adequate to protect human health in the face of the planned land use changes or the impacts of the flooding event. The Five-year review must recommend either a reevaluation of the remedies to address these issues or call for a halt to the land use changes.</p>	C - Land Use Assumptions and Exposure Scenarios
Superior	S20	Question A	<p><u>Only a "Short-Term Protective" finding is appropriate under the Comprehensive Five-Year Review Guidance. It is clear that much more must be done before it is reasonable or appropriate to conclude that the remedies will be protective in the long-term. These additional activities must include sampling of soils and sediments in the areas downstream of the COU along Woman and Walnut Creeks in anticipation of construction activities and the resulting human exposures. Protection of the sampling equipment and other aspects of the remedies so that they function during flood events must also occur.</u></p>	<p>E - Question A</p> <p>I - Flooding</p>
WCRA	W1	OLF	<p>Continue to Require a Monthly Frequency for Inspections of the Original Landfill and Require Additional Monitoring of Up-Gradient Groundwater Levels</p> <p>...as DOE/LM is in the process of determining appropriate engineering solutions to this ongoing issue attributable to ground slopes and groundwater, it seems prudent that recommendations in the Fourth Five Year review include direction for up-gradient groundwater level monitoring at a frequency of at least weekly.</p>	J - OLF

WCRA	W2	Not Relevant	<p>Include Discussion of the Adaptive Management Plan, Including Technical Points from the Authority's Position Paper.</p> <p>The Third Five-Year Review described the Adaptive Management Plan (AMP), which was triggered by concern about proposed breaching of the terminal pond dams. This included a discussion of the data to be collected and noted the delayed timeframe for reconsidering breaching of the terminal pond dams (delayed to 2018-2020). It seems appropriate to provide an update on that effort in the upcoming five-year review. For consideration as part of that update, the Authority offers the findings from its evaluation of historical and AMP data. That analysis is presented in a position paper describing a technical basis for continued opposition to breaching the Pond C-2 dam.</p> <p>WCRA recommends not breaching the Pond C-2 dam, but instead continuing to operate in flowthrough mode with a contingency plan to trigger closing the dam to retain water under specific critical circumstances. This proposed solution would reduce pre-AMP operating costs by eliminating routine batch-and-release operations and evaporative depletions, while expanding habitat. WCRA believes this proposed solution is supported by the Site data and meets the Purpose and Needs noted by DOE in the Environmental Assessment for dam breach, while maintaining a proven-effective contingency to protect downstream water quality.</p>	Not Included in Appendix A
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Broomfield			
Comment Number	Topic	Text	
4	Terminal Dam Breaching	Broomfield opposes breaching the terminal dams until the successful demonstration that the remedy continues to function properly without significant issues, changes to site conditions, or water quality exceedances for two consecutive CERCLA Five-Year reviews. Successful demonstration of the remedy should be based on the following criteria, and the criteria should be cited in the Fourth CERCLA Five-year Review: 1. No water quality exceedances or elevated levels at any surface water points of compliance (POCs), surface water Points of Evaluation (POEs), surface water monitoring at Indiana street (regardless of the designation as a POC, or not), and groundwater Area of Concern (AOC) wells. 2. Surface water and groundwater monitoring are not showing increasing trends. 3. Sustained functional performance of the groundwater treatment units without changes, modifications, enhancements, or alterations to the treatment process. 4. No significant erosion activities, landslides, slippage, slope failure or other geological activity where surface or subsurface soils are mobilized or disturbed. 5. No abnormal or unforeseen condition that could have an adverse effect on the breaching of the dams.	Not relevant to FYR, as determined in 03/22/17 meeting with DOE, EPA, CDPHE.
Superior			
Comment Number	Topic	Text	Further Text
12	General	<p>Guesswork does not suffice to answer these critical questions. That the soils and dusts mobilized during construction will have contamination should be assumed and as DOE is responsible for that contamination, DOE must be in a position, using actual data rather than guesses and assumptions, to reassure everyone from constructions workers to members of the downwind public, that they are safe.</p> <p>We are also quite concerned about the ultimate disposal of dirt and other debris removed during construction activities on the site regardless of whether generated during construction of the visitor's center, Greenway underpass and trails, or the proposed highway. One assumes all of this dirt and debris is potentially contaminated. Will it be evaluated so that fully appropriate and lawful handling and disposal practices will be followed? Where will it be disposed? How will it be hauled if removed off of the Site?</p>	Not relevant to FYR, as determined in 03/22/17 meeting with DOE, EPA, CDPHE.
15		...the Comprehensive Conservation Plan/Environmental Impact Statement (CCP/EIS) created by USFWS in an attempt to comply with the National Environmental Policy Act (NEPA) at the creation of the Refuge, did not evaluate any land use proposals involving the construction or use of a highway or bike trails across the Woman Creek and Walnut Creek drainages. Apparently because of this limitation, none of the evaluation of exposures or remedies at the site considered these issues. Further, and more importantly, the CCP/EIS makes clear that a "definitive analysis of the direct impacts of potential transportation improvements is outside the scope of this CCP/EIS." In fact, the CCP/EIS specifically excluded what is now being presented as the Jefferson Parkway Public Highway Authority proposal when it stated that "a detailed analysis of any specific type of transportation improvement along Indiana Street, such as creation of a four-lane divided highway, is outside the scope of this CCP/EIS". Likewise, the only trail systems described in the CCP/EIS accessed the Refuge well North of Walnut Creek and outside of the Wind Blown Exposure Unit.	Not relevant to FYR, as determined in 03/22/17 meeting with DOE, EPA, CDPHE.
Woman Creek Reservoir Authority			
Comment Number	Topic	Text	
22		Include Discussion of the Adaptive Management Plan, Including Technical Points from the Authority's Position Paper. The Third Five-Year Review described the Adaptive Management Plan (AMP), which was triggered by concern about proposed breaching of the terminal pond dams. This included a discussion of the data to be collected and noted the delayed timeframe for reconsidering breaching of the terminal pond dams (delayed to 2018-2020). It seems appropriate to provide an update on that effort in the upcoming five-year review. For consideration as part of that update, the Authority offers the findings from its evaluation of historical and AMP data. That analysis is presented in a position paper describing a technical basis for continued opposition to breaching the Pond C-2 dam. ... WCRA recommends not breaching the Pond C-2 dam, but instead continuing to operate in flowthrough mode with a contingency plan to trigger closing the dam to retain water under specific critical circumstances. This proposed solution would reduce pre-AMP operating costs by eliminating routine batch-and-release operations and evaporative depletions, while expanding habitat. WCRA believes this proposed solution is supported by the Site data and meets the Purpose and Needs noted by DOE in the Environmental Assessment for dam breach, while maintaining a proven-effective contingency to protect downstream water quality.	Not relevant to FYR, as determined in 03/22/17 meeting with DOE, EPA, CDPHE.
DU Law			

Comment Number	Topic	Text	Further Text
25		Much discussion of the Cook case.	Not relevant to FYR, as determined in 03/22/17 meeting with DOE, EPA, CDPHE.